

## REFERENCE

**P176**

## The role of biofilms in the transmission of *Helicobacter pylori* through drinking water

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*Helicobacter pylori* has a major role in promoting risk of peptic ulcer disease and non-cardia adenocarcinoma of the stomach and is present in more than 80% of the Portuguese population. The route of transmission of *H. pylori* to humans remains a controversial question, but it has been suggested that the bacterium may survive in water supplies by becoming associated with autochthonous microorganisms present in biofilms formed in such systems. Therefore, different experimental conditions were tested in terms of the influence in the adhesion of water-exposed *H. pylori* to surfaces. The bacteria adhered in higher numbers in the absence of shear stresses, indicating biofilms formed on the surfaces exposed to well-water as preferential places for the location of the bacteria. Temperature, type of material and inoculation concentration appeared to have no effect in the extent of adhesion. However, cell morphology was largely dependent on the support material, with spiral bacteria, associated with the infectious form of *H. pylori*, subsisting for longer periods on non-polymeric substrata. Nevertheless, after viability-staining of the adhered pathogen, it was observed that *H. pylori* would start to become non-viable after 48 hours, which indicates that co-aggregation with other species might be necessary for the survival of the bacteria. This represents the first study of *H. pylori* behaviour in water-exposed abiotic surfaces.